

Objective

Intelligent system architect seeking a challenging software development position where I can utilize my machine learning skills, analytical thinking, language skills (Japanese), passion and experience in developing production intelligent systems. My interests lie in building production text classification, language analysis and search systems.

Skills

- Over fifteen years of software engineering experience in designing and constructing artificial intelligent systems.
- c, python, unix (various, primarily Linux, Solaris) and Java.
- Experienced at building embedded indexing/search/classification applications.
- Implementing adaptive software systems using neural networks, genetic algorithms, naive Bayesian classification, maximum entropy classification and fuzzy logic.
- Feature engineering utilizing derived features and other non-textual features.
- Statistical analysis and modeling.
- Designing and planning large software systems.
- Excellent technical writing and communication skills.

Experience

- June 2003 - Present
Rater Architect & Co-founder, [RuleSpace, LLC](#), Beaverton, OR
 - *Principal Investigator* in research and development of technology.
 - Design and implementation of a next-generation text classification system, including a shallow lexer, feature extractor(s) (novel approach to Japanese tokenization), supervised learning tools, training and runtime harnesses, HTTP proxy-based document annotation tool, language analysis, and other sub-projects to facilitate development and deployment of multiple language/category models.
 - Design and implementation of a SMS/Chat filtering solution.
 - Developed RSS Feed monitoring for site discovery.
 - Developed innovative feature engineering strategies using genetic algorithms. Island models implemented utilizing multi-core processors.
 - Research, design and implementation of an automated distributed HTTP crawling and rating service.
 - Research and development of a nude image detector that has accuracy similar to other commercial offerings and twice as fast.
 - Authored numerous patent reports; three patents pending.
 - Numerous tools and libraries to support the aforementioned systems, e.g., URL canonization, math routines, lightweight XML parser, multi-pattern search routine, etc.
- October 2002 - May 2003
Consultant, Portland, OR
 - Developed several solutions and tools for [Nike](#), [Autodesk](#) and [HP](#). Solved problems in differing domains ranging from server monitoring software to SCM bridging (CVS to ClearCase).
- April 2001 - August 2002
Senior Software Engineer, [World Wide Packets](#), Beaverton, OR
 - Design and implementation of a probabilistic network topology discovery system utilizing incomplete layer-2 forwarding database information.

- April 1998 - August 1999; Jan 2000 - April 2001
Senior Software Engineer, [Gensym](#), Cambridge, MA
 - Developed Java-based data visualization and statistical analysis tools.
 - Assisted customers in modeling their specific problems.
 - Localized product to the Japanese market; implemented localization framework, managed translation.
- August 1999 - Jan 2000
Senior Associate, [PricewaterhouseCoopers](#), Boston, MA
 - Developed corporate tax liability optimization algorithms.
- May 1996 - April 1998
Research Engineer, [Creative Optics](#), Bedford, NH
 - Design and implementation of an automatic target detection system to test and evaluate algorithms.
 - Managed and jointly developed a prototype demonstration in cooperation with a leading aerospace corporation.
 - Co-authored a patent report on integrating human attributed evidence in automatic target acquisition systems.
 - Security level clearance held: *Secret*.
- June 1995 - September 1995
Guest Researcher, [National Institute of Standards and Technology](#), Gaithersburg, MD
 - Design, implementation and validation of my core thesis algorithms.
 - Modeled and simulated realistic manufacturing system problems.
- September 1994 - April 1996
Research Assistant to [Dr. Luis Rabelo](#), [Ohio University](#), Athens, OH
 - Developed software platform to test ideas and approaches in adaptive scheduling techniques.
 - Authored and contributed to papers detailing our work, algorithms and innovations.
 - Assisted in course development, instruction and grant writing.

Education

- **Master of Science, [Industrial & Manufacturing Systems Engineering](#), [Ohio University](#), 1996.** *Member of Alpha Pi Mu Industrial Engineering Honor Society.*
- **Bachelor of Arts, Applied Mathematics and Computer Science, [Hiram College](#), 1994.**

Publications

- Martelli, A., Ravenscroft, A., Ascher, D., [Python Cookbook, 2nd Edition](#), Contributed [code](#) that demonstrates Multitasking Cooperatively Without Threads using generators. pp.378-380, March 2005.
- Rabelo, L., Bush, B., Jones, A., [Using Genetic Algorithms for Job Shop Scheduling](#), Journal Mathematical Modeling and Scientific Computing, May 1998.
- Bush, B., Kharoufeh, J., Rabelo, L., [Development of an Evolutionary Scheme for Adaptive Fuzzy Design](#), Proceedings of the Adaptive Distributive Parallel Computing Symposium, Dayton, Ohio, August 8-9, 1996.
- Bush, B. and Rabelo, L., [Evolutionary Scheme for Adaptive Fuzzy Design](#), Mechatronics Proceedings of the NSF Mechatronics Workshop, San Francisco, California, June 13-15, 1996.
- Gilkinson, J., Rabelo, L., Bush, B., [A Real World Scheduling Problem Using Genetic Algorithms](#), Computer & Industrial Engineering, An International Journal, Pergamon Press, Vol. 29, pp.177-182, 1995.
- Bush, B. [Development of a Fuzzy System Design Strategy Using Evolutionary Computation](#), Master of Science Thesis, Ohio University, 1996.

Professional Development

- FCC Technician Amateur Radio License ([KD7YHR](#)), September 2003.
- Elementary Japanese II, [Harvard University](#), Spring 2000
- Distributed Computation using Java, [Harvard University](#), Spring 1999.
- How to Supervise People, a Fred Pryor Seminar, November 1997.
- Active Member [AAAI](#)
- [Straight Key Century Club](#), member 6178.

Community

- Local School Committee member (elected 2009) for [Jacob Wismer Elementary School](#) of the [Beaverton School District School](#).

Interests

- Bolting evolution into software.
- Retrocomputing: playing with systems from simpler times (e.g., 6502 assembly)
- Studying Japanese (2058+ kanji, hiragana, katakana, basic-intermediate grammar, basic speaking); Current level: basic-intermediate.
- Snowboarding/Skiing, mountain biking, swimming, yoga, hiking and being in the great outdoors.
- Amateur Radio: low-power operation (qrp), cw (morse code).

Open Source Projects

- [Pico XML](#), a small, fast pull-parser in C for XML. License: LGPL (2006)
- [Tiny XML](#), another small, fast SAX parser in C for XML. License: LGPL (2009)
- [Joe](#), a small concatenative programming language based on FALSE, DUP and FORTH. License: LGPL (2009)
- [rtkize](#), developed Anki plug-in to add RTK keywords to Kanji. (2009)

Work Status

Authorized to work in the US for any employer.

References

References will be provided upon request.